

Domestic Wells – Is The Water Safe to Drink?

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*Groundwater Ambient Monitoring and
Assessment “GAMA” Program,
State Water Resources Control Board*



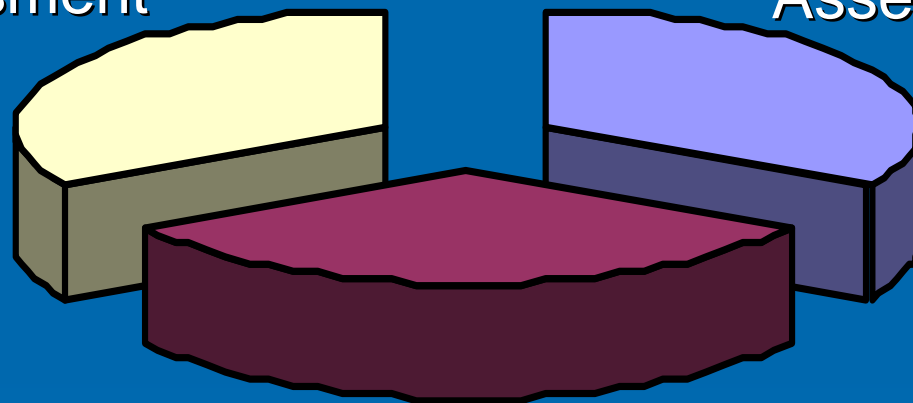
Presentation Overview

- GAMA Program
- Domestic Well Project
 - Background, Scope
- Sampling Methods and Analysis
- Results Overview

GAMA Program - Current Projects

Domestic Well
Assessment

Priority Basin
Assessments



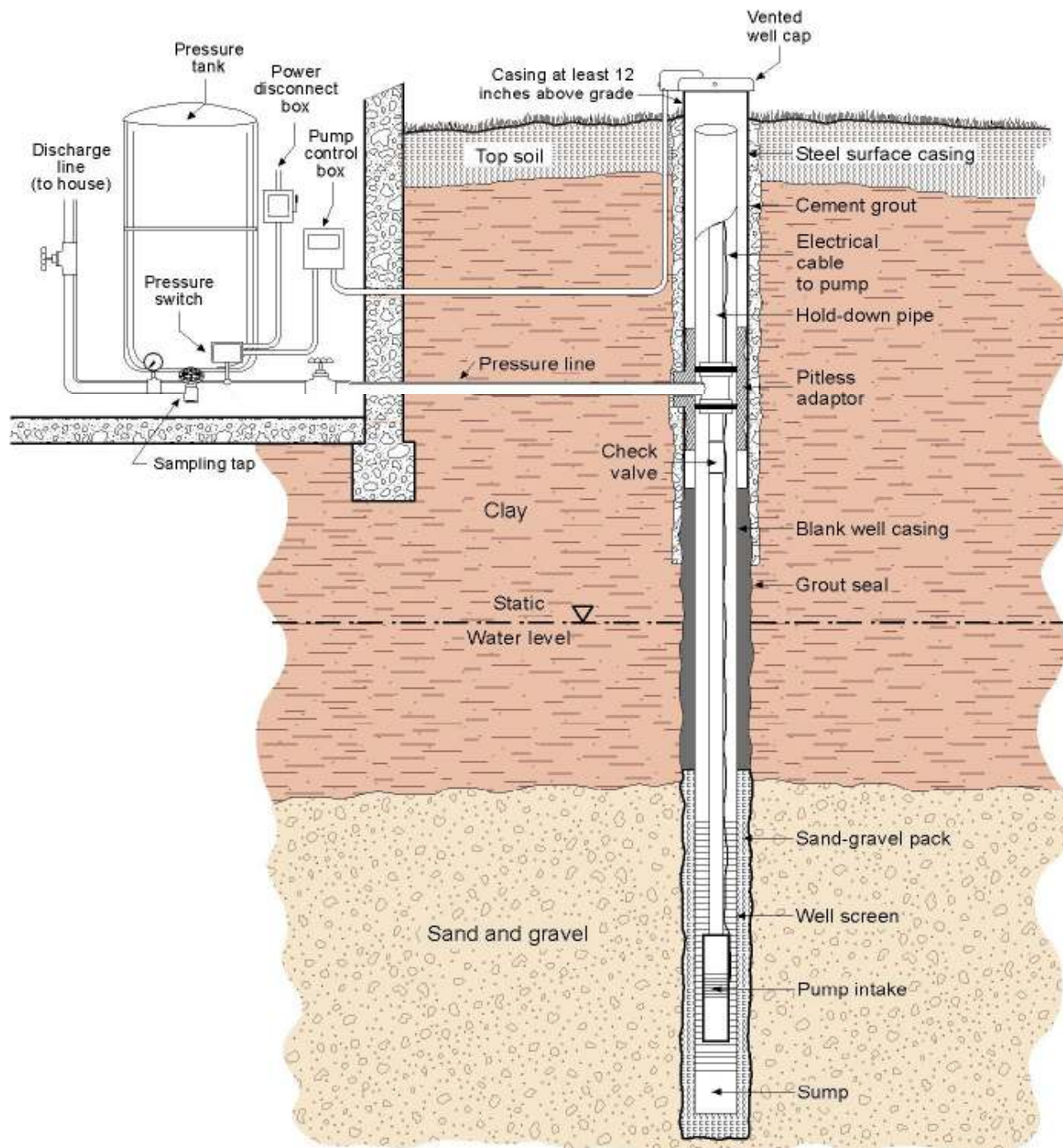
Special Studies

Purpose of the Domestic Well Project

- Domestic wells are for private use and consumption, typically for single family homeowners
- Water quality in California domestic wells is largely unknown
- Informs Domestic Well Owners
- Provides water quality information to State and local governments - shallow groundwater

Typical Domestic Well System





Modified from Driscoll, 1986

Project Scope

- Cost of sampling and analysis incurred by State Water Board
- Focus areas selected in coordination with County
- Brochures mailed to thousands of well owners
- Wells selected for best areal coverage;
- Well construction logs preferred, but not mandatory

Project Scope *(cont'd)*

- Well sampling scheduled with well owners or tenants
- Samples analyzed for drinking water suite, plus additional constituents of concern on select wells
- Analyses performed by certified commercial laboratory
- Test results provided to the well owners and tenants
- Data shared with local agencies; Names and addresses kept confidential

Groundwater Ambient Monitoring and Assessment (GAMA) Program - Voluntary Domestic Well Assessment Project

Sampling Study Areas

Total Number of Wells Sampled through 2006 928

2002	Year sampled
(128)	Number of wells sampled

Tehama
2005
(223)

Yuba
2002
(128)

El Dorado
2003, 2004
(398)

Tulare
2006
(181)



0 50 100 Miles



Map by: David Deane, Engineering Consultant
State Water Resources Control Board
Groundwater Ambient Monitoring and Assessment Program
December 2006

Field Sampling Methods

- Wells located using Global Positioning System (GPS)
- Samples collected at the well head or pressure tank prior to treatment, and after purging well or tank
- Duplicate samples collected at 10% of wells
- One trip blank per day is sent to the lab for Volatile Organic Compounds (VOCs) analysis.

Laboratory Analyses

- Inorganics (e.g., Lead, Arsenic, Nitrate)
- Total and fecal coliform
- Organics (e.g., MTBE, PCE, TCE)
- General minerals (e.g., Sodium bicarbonate)
- Physical and chemical parameters
- Selected wells also analyzed for pesticides, radionuclides, and perchlorate

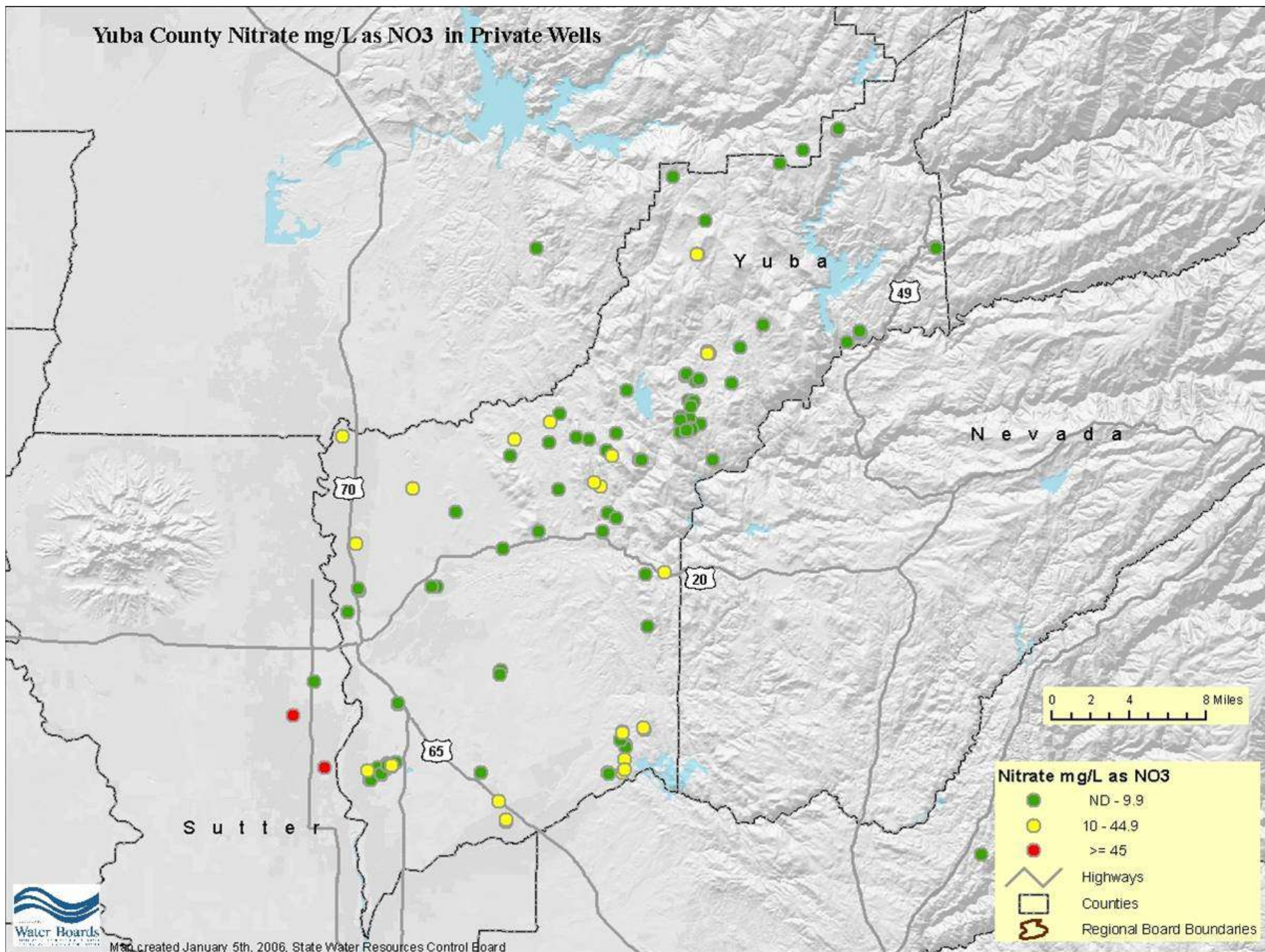
Project Testing Results Summary

County Focus Area (Year)	Number of Wells Sampled	<i>Compound</i>	
		Nitrate	Total Coliform
Yuba (2002)	126*	2%	8%
El Dorado (2003-04)	398	2%	26%
Tehama (2005)	223	1%	25%
Tulare (2006)	181	41%	33%
Cumulative Project Total	928	9%	27%

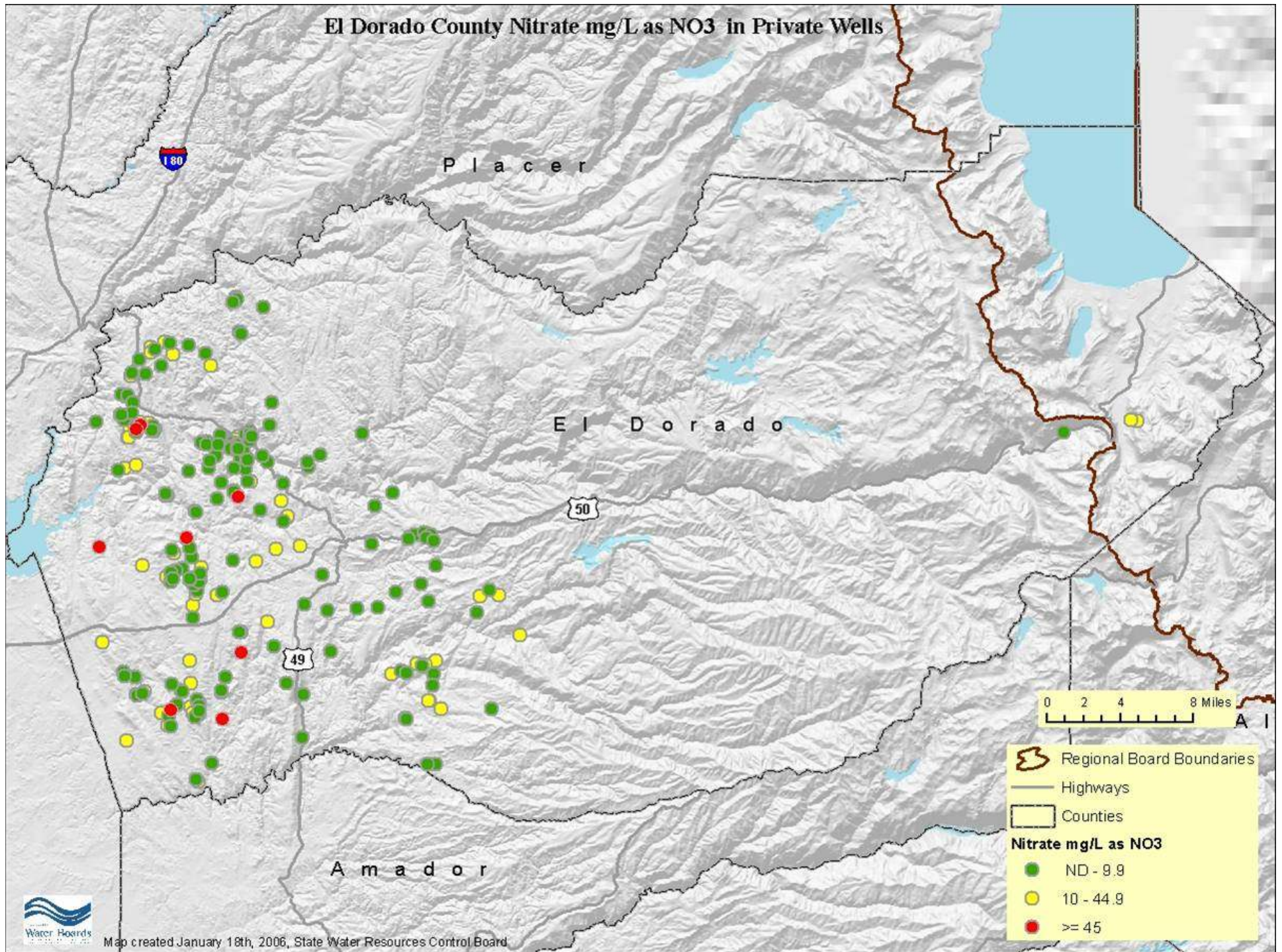
Number of Wells at or Above CDPH Primary and Secondary Maximum Contaminant Levels (MCL/SMCL) and/or Notification Level (NL). MCLs and NLs are used for comparison since domestic wells are not regulated

** Includes nine wells from 2002 Pilot Study*

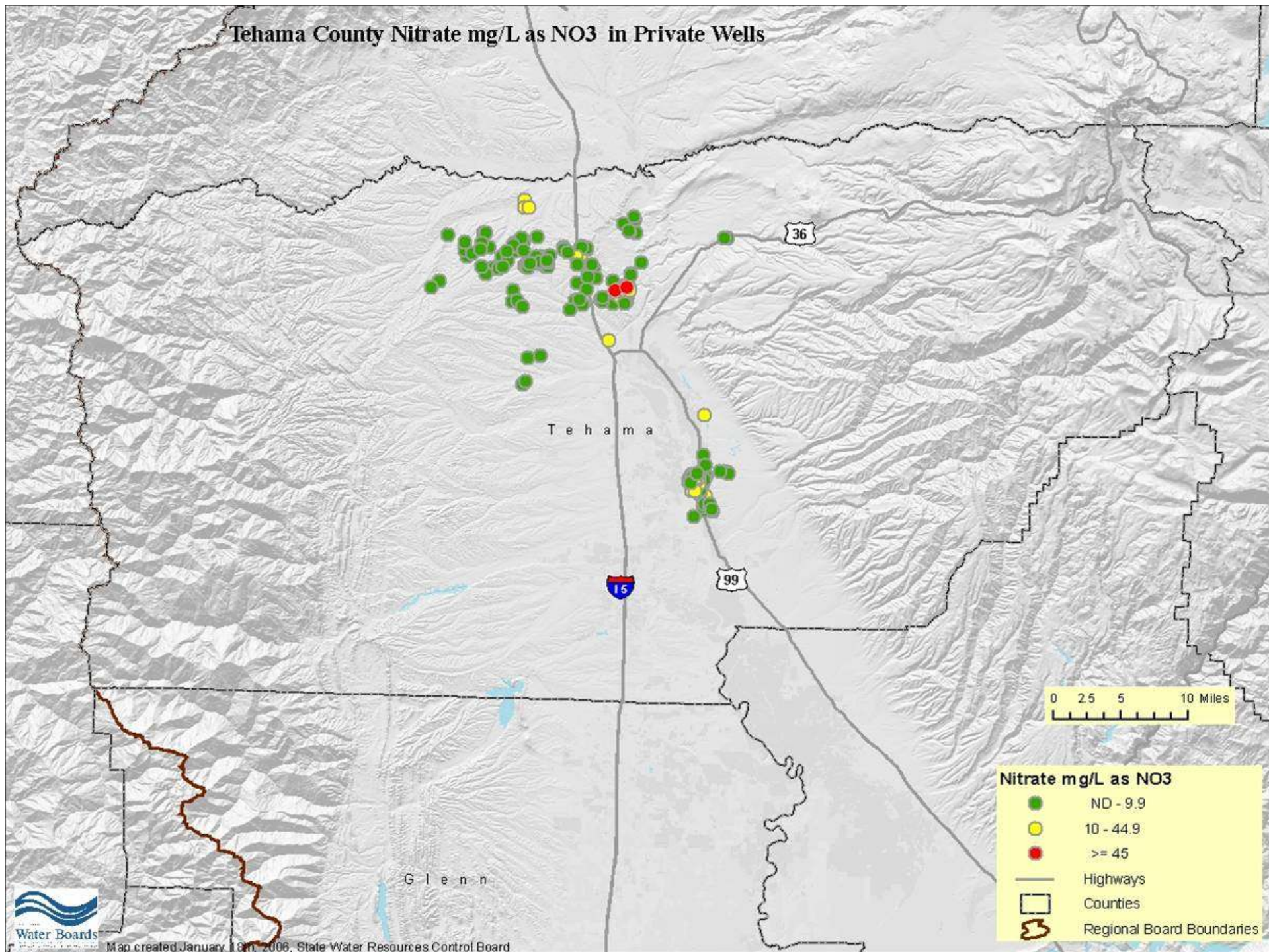
Yuba County Nitrate mg/L as NO3 in Private Wells

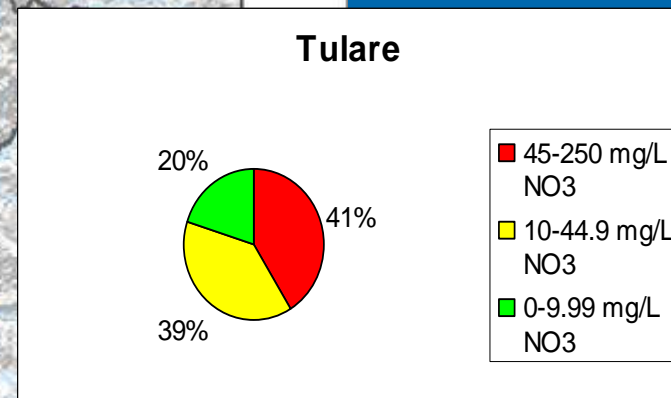
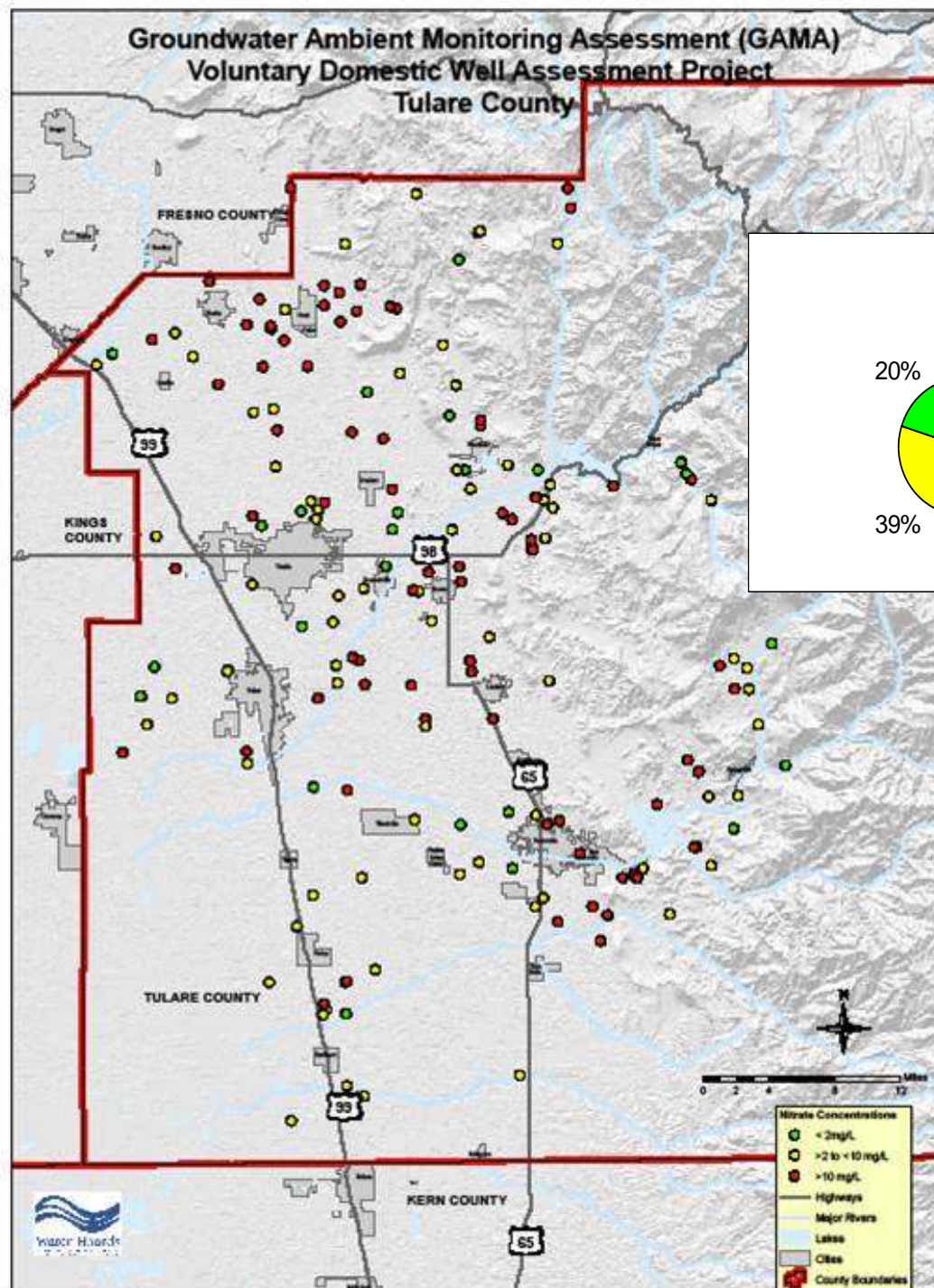


El Dorado County Nitrate mg/L as NO₃ in Private Wells



Tehama County Nitrate mg/L as NO₃ in Private Wells





Effect of Tulare Sampling

- Domestic Well Project highlighted water quality issues related to domestic wells
- Groundwater quality issues known by the county were elevated as a result of state GAMA program sampling
- Stakeholders are meeting to address water quality issues affecting domestic well users

Q: So, Is it Safe?

A: Have your well water tested to find out.

Next Focus Area: San Diego County

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